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ABSTRACT

Bringing the electronic classroom to the traditional classroom is a challenge--especially if students do not have access to computers. There are, however, some exercises that can be conducted in the classroom while the computer grant is being processed. Many computer and writing theorists argue that computer-mediated writing classes tend to be "democratic" and inclusionary, with student writing and revision poised toward a larger audience than just a teacher-evaluator. Theorists like Gail Hawisher (1992) also note that electronic conferences, in which students use a computer network to comment about each other's papers, promote writing as communication. These benefits of computer-based writing can be reproduced through traditional methods. It goes without saying, for instance, that an instructor can focus class readings and discussion on technology and culture. In addition, a class structure can simulate a "network" culture. For instance, students can experiment with a nonelectronic version of the web's system of authority and democracy. If during the first half of the semester, the classroom is hierarchical, during the second half it can become fashioned into a "hypertextual network of affiliations." Gradually, students can form a "network" of interest groups in which they share their relevant skills, research, and access to knowledge. Using this "web" of mutually-supportive contacts, students can create an individual research paper. (Contains 11 references, 3 suggested class readers, and information on joining an electronic discussion list.) (TB)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

The Silicon Ceiling: Technology, Literacy, and the Community College Student

A talk given at CCCC '96

by

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I'm talking to you today as a techno-masochist. That's someone who, despite sadistic printers, lost data, and viruses surfing the Internet, keeps coming back for more punishment. I do this because, semester after semester, I watch my students striving to negotiate a livable position in a culture that's saturated with technology. And I don't see them being prepared in the same ways as their more privileged counterparts in more technologically (and financially) endowed schools. Culturally marginalized students are among the hardest hit; many come to our classrooms hoping to gain a foothold in a world of work that continually raises its stakes. Our students put a lot of faith in the system to prepare them for a better (and often vague, unstrategized) future. Yet, this future (as Fred Kemp once so poetically put it) is rapidly "morphing under our students' feet." Many of the students I talk to are pushing against a "silicon ceiling" which stubbornly refuses to budge despite their successful completion of basic traditional requirements. And, even though *Business Week* reported in October that "a whole generation is gaining [computer] skills at community colleges and technical institutes," outdated equipment, repeated budget cuts, and institutional problems with funding or implementing new technologies have many of us bumping into that same silicon ceiling our students are up against (137).

I'm concerned that those of us who recognize the benefits of linking computers and writing, but who teach in traditional classrooms, feel blocked by things outside our control. How can we help our students gain a sense of entitlement, familiarity, and cognitive resonance with the "electronic conversation"? We don't have time to go to conference presentations or demonstrations of the latest technologies, if we won't have a chance to implement what we learn. And why read computers and

writing theory if there are no computers in our writing classes? Bringing the electronic conversation to the traditional classroom is a challenge, but I believe that we can construct courses that engage our students in many of the reading, writing, and thinking skills their more privileged--or "connected"--counterparts have access to. While we're waiting for that computer grant to go through, or for our name to come up on the priority room assignment list--or even for a sane and private space in which to test the Internet for the first time---we can help our students benefit from some of the cognitive and social processes that computers are thought to facilitate.

This, then, is not a talk about how to do without computers altogether, but rather a pragmatic approach to how we spend our time waiting for them. I propose a strategic "mis-reading" of current scholarly writing about computers. If we consider the traditional tasks that electronic activities are purported to replace or enhance--bulletin boards, news groups, synchronous and asynchronous conversations, and experimental fiction-- we might use them to reflect on the reading, writing, and thinking processes each involves. I want to hold up a theoretical mirror which reflects the non-electronic benefits of electronic writing. As in a mirror image, some of these reflected shapes will look a bit distorted to those who have seen the real thing. However, if we look at computer-mediated instruction as a series of cognitive, relational, knowledge-making, or collaborative tasks, we can discern intersections between the electronic and non-electronic classroom. I'm asking you to think backwards in a certain sense, from the electronic to the traditional, in order to imagine tasks that can bridge the gap between print-based and electronic classrooms.

First, let's take a quick look at some of the theories we hope to misread. A great number of computer and writing theorists argue that computer-mediated writing classes tend to be "democratic" and inclusionary, with student writing and revision poised toward a larger audience than just the teacher-evaluator. Theorists like Gail Hawisher also note that electronic conferences, in which students use a computer network to exchange comments about each other's papers, promote writing as communication. Rather than merely producing a required amount of text to be evaluated by the instructor, students write *to each other* to construct meaningful texts (86-87).

In addition to this sense of community and collaboration, computer-mediated classrooms allow students to see writing and revision as they happen. Thomas Barker has called the computer screen a "glass canvas" for student creations (15). As any of us who have worked with a word processor can testify, revision seems much less cumbersome and confusing when large chunks of text can be rearranged before our eyes. Watching a text under construction [theorists argue] helps to externalize a writer's decision-making processes. Students who watch each others' writing strategies as they are put into effect readily offer each other suggestions.

Finally, students with access to the world wide web encounter a type of writing in which readers are given more responsibility for interpreting the meaning--and even the sequencing--of information. "Hypertexts," which seem to combine the qualities of footnotes, encyclopedia indexes, and "choose-your-own-adventure" books, are organized into a series of electronic "pages" which can be viewed in any

sequence one chooses at the click of a button. The text is different for every reader; its contents and arrangment depend on the individual.

L. M. Dryden sees in this capability the potential for hypertext to "empower students to become creators of knowledge and constructors of their own meaning" (284).

Having looked at these broad, very much simplified theoretical categories, let's look now at some traditional tasks with a "buzz." I only have time today to offer you a few examples of this kind of misreading, but I hope they will spark your own process of thinking backwards as you consider your own students.

It goes without saying that we can focus class readings and discussions on technology and culture. I've included several suggestions for class readers on this handout. In class discussions, I usually have my students think about questions such as the following:

--What potential non-authorized uses might a particular technology have?
--How could it be misused, or used in ways its inventors didn't intend?
--What other inventions might need to come along to make it cost-effective, useful on a large scale, accessible?
--How can we determine when (or to whom) a technology or scientific discovery is inclusive (gives access to resources), and when it is exclusive (imposes limitations)?

Especially vital to community college students are questions of access, entitlement, and empowerment. The goal here is to get students away from a stance of passive receptivity towards technology, to get them questioning "techno-centric" stances which assume technology to be an unquestionably beneficial presence in our culture.

In addition, class *structure* can simulate "network" culture. For example, my first year composition students experiment with a non-electronic version of the web of authority and resources Jay Bolter has envisioned. During the first half of the semester, we follow what Bolter would term a "hierarchical" classroom setup, in which I provide information, raise issues for class discussions, dictate assignments, and assess results. Around midterm, however, after reading an excerpt from Bolter's The Writing Space, we attempt to fashion ourselves into a "hypertextual network of affiliations" (213). Gradually (and with my help), students form a "network" of interest groups in which they share their relevant skills, research, and access to knowledge. Using this "web" of mutually-supportive contacts, students create an individual research paper and a creative, collaborative presentation. This leveling of power structures, like that ostensibly experienced in computer networks, gives each student wider access to resources and a sense of authority in the areas he or she chooses to research.

For example, in the collaborative project I mentioned--the "Invention Exchange"--students use their "network" of interest groups to devise a new technology or upgrade an old one. Through a series of individual writing assignments and interest-group sessions, each student describes a common problem, imagines an invention that would fix that problem, and then discusses how society would change as a result. (Having grown up in Texas, I always suggest a microwave *freezer* to get the speculative process going.) "Inventors" of similar products then collaborate to produce a cohesive technological "argument" to propose to the class as a whole. After several preparation sessions, each group presents its package of inventions to a freewheeling class interrogation of their products' problems of access,

implementation, and potential usage. My students enjoy this project immensely, and the presentations not accidently provide a sense of confidence and entitlement in each "inventor's" ability to imagine change in the system.

In addition to class focus and structure, activities that simulate or juxtapose electronic and non-electronic versions of the same tasks can get students using and critiquing the thinking, reading, and writing processes that various modes of "connected-ness" enable. For example, I use the potential difficulty of negotiating web page links to look at how writers link ideas and set up "pathways" for their readers to negotiate through their texts. In order to do this, I prepare a series of transparencies which visually approximates "text-only" versions of web pages. The first transparency (the "home page") provides a summary of the reading to be discussed and a table of contents of possible "links" to other "nodes" of related information. The students choose two or three of these "nodes" (in reality, other transparencies) to follow up. As I switch back and forth between these selections, we discuss the difficulties we have in keeping our facts straight, other "links" that could have been provided but weren't, and which "pathways" (sets of sequences) seemed to strengthen our understanding of the material. I use another type of "hypertext" to jump start student brainstorming sessions. In this activity, the transparency contains a paragraph from an assigned reading, with "hot" (or, linkable) items bolded to indicate other possible "nodes." Students then *write* these other nodes--explaining a concept, a vocabulary word, or a potential paper topic--and "post" them to the "web site" (i.e., show them to the class). This sequence of writing and sharing continues until students begin to draw ideas for individual or group projects out of the multiple offshoots.

If, like many teachers, we find that we have a greater degree of personal access to technology than do our students (or even our institutions), we can bring that access into the classroom. Sharing our own access to technology can spark students' dawning awareness that they, themselves, are entitled to and intellectually capable of such access, that they are in many ways already "in the net," and that they can increase whatever level of access and technological awareness they now have. With a little serendipity and a lot of planning, we can introduce a sense of irreverent familiarity with computers to students who would otherwise view themselves as out of the loop.

For example, there are several informal electronic discussion lists in which the students of two or more teachers "talk" to each other via e-mail. These can last for the duration of a class, or continue indefinitely among interested participants. While my students don't have individual access to these conversations, as a teacher with personal access to the Internet, I can bring the conversation to them. If I print a transcript of a day's or a week's postings to a discussion list, my students can write responses or reactions to the issues raised. I can, in turn, use my own e-mail account to post my students' responses to the discussion. In effect, I act as one more "file server," or extra relay in their path to the Internet discussion list. While, of course, my students don't "really" have access to the Internet discussion in this way (I am both "feeding" information to them and "retrieving" their writing to post to the list), this mediated access brings them several steps closer to what their more privileged counterparts are experiencing for themselves.

In order to show students the computer's externalization of thought processes, and in order to model global revision strategies, I took my laptop

to my developmental composition class last semester and used it to enliven face-to-face revision conferences. As the student writer watched, I typed one paragraph of his or her paper verbatim--"mistakes" and all--onto my screen. This paragraph remained inviolable--a stable, unchangeable artifact of the student writer's work. I then copied this paragraph on the lower half of the screen. The second paragraph became our "electronic" text, a fluid, collaborative, always-in-process document which could be edited at will. As we tried out different grammatical structures, word choices, and organizational sequences onthe screen, these students gained a sense of the malleability of text and the power of revision--without the mess of multiple cross-outs, or the problem of holding proposed revisions in our limited (human) memories. Once the student had pronounced the revisions ready, I made a transparency which contained both original and revised paragraphs so that we could talk about our revision strategies as a whole class the next meeting. Student writers thus saw that they had authority over their own words. The revised text became the evidence of their choices as writers--and it was evidence that more powerful ways of presenting *their ideas* were strategies that were well within their grasp.

Of course, effects like these can be magnified if you have occasional institutional access to an LCD (liquid crystal display) panel, which projects your computer screen through an overhead as if it were a (moving) transparency. The entire class can thus view revision, Internet discussions, and other online activities--including your mistakes and frustrations--as they happen. In the example just discussed, for instance, the one-on-one revision conference and the whole-class discussion could have occurred simultaneously with an LCD.

Transitional activities such as these can serve to familiarize students with the language of electronic writing and encourage them to explore the internal workings of diverse ways of knowing. Developing projects that simulate computer use can literalize technological metaphors for conceptualizing, formatting, and distributing ideas, allowing students to step--however tentatively--inside the charmed circle of their more privileged, computer-saavy counterparts. I'm not arguing that any of the activities outlined here can offer the same experience as students would have in a "connected" class. In fact, they are best performed with tongue planted firmly in cheek. I offer them in hopes that these simulated activities can induce in our students a sense of irreverent familiarity and entitlement toward the technologies that so often seem to block the personal breakthroughs they seek. If we can take away some of the mystique of computers for our students, we will have gone a long way toward converting the "silicon ceiling" into an accessible, powerful, negotiable "glass canvas."

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How/Why to Join an Electronic Discussion List

Since electronic discussion lists consist of day-to-day conversations, arguments, and requests for advice among people interested in the list's focus, academic lists usually represent the most current ideas in a given

field. Posting is not required; a shy member can "lurk" at will on these lists, reading and benefiting from the postings of other members before attempting to join the fray.

See page 10-11 of the CCCC Convention Program for names and e-dresses of several composition-related discussion lists. To join a list, send a "subscribe" message and your name to either "listproc" or "listserv" at the list's e-dress. For example, if I wanted to subscribe to acw-l, I would send an e-mail message to:

listproc@unicorn.acs.ttu.edu

[Leave subject line blank]

The body of my message would read:

subscribe acw-l cheryl reed

If this is the first time you've subscribed to a discussion list, you may have some minor frustrations (like unrecognized commands or list names), but keep trying. The effort is well worth it.

Two online introductions to the Internet are newbienewz and Spectrum Virtual University. Both of these services were still free the last time I checked. Newbienewz operates, at present, within a question-and-answer format, but its archives contain detailed lessons (called "Roadmaps") on everything from e-mail to the World Wide Web. Subscribe to newbienewz at majordomo@io.com and then use the "get" command [ex: Get Roadmap 1] to request specific lessons. To connect with Spectrum Virtual University, request a list of classes from Calendar@Horizons.Org.